



Feeling brave?

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Technology investments suffered greatly in the credit crunch and the resulting economic downturn. Although the FTSE Electronic & Electrical Equipment subsector has performed strongly since March this year, it is still around 53 per cent lower than the level it attained in the summer of 2007, just before the subprime lending crisis emerged. By comparison, the FTSE All Share index is today down by only 35 per cent on the level it reached in July 2007.

Other FTSE technology subsectors, like [Technology Hardware & Equipment](#) and [Software & Computer Services](#), are still well down on the highs they hit two years ago. Meanwhile, as with other industries, technology IPOs have almost ground to a halt, so it is clear that investors in general are not yet hungry for technology shares.

But for those investors looking to reap great rewards from technology over the long term, it could be worth checking out how to invest in private technology companies. Innovation might be curtailed by recession, but it does not stop entirely and there are still technology businesses out there looking for new cash to develop their products and fund future growth.

Business angel networks are one way for private investors to get involved with these companies. But often a business angel will need to commit to investing six figures, or a sum close to that, if he is to be allocated a portion of a new technology enterprise. Of course, for most private investors, staking the equivalent of a small mortgage on one company is too great a risk to bear.

Another way for private investors to achieve exposure to early-stage technology companies is to buy shares in investment vehicles that themselves manage a portfolio of stakes in such ventures. In London there are many investment trusts and funds that do this, but perhaps the best approach is to buy shares in early-stage investment vehicles that also take an active role in nurturing technology companies from their conception through to the point when they have become mature enough to achieve a stockmarket flotation or trade sale.

Here we look at four London-quoted firms involved in building technology companies.

Amphion Innovations

[Amphion Innovations](#) is a business that not only holds stakes in private technology firms but takes an active role in building them into high-growth companies. Amphion has significant shareholdings in eight technology companies that are targeting substantial commercial marketplaces, each in excess of \$1bn, and all these companies were chosen with the goal of achieving exit valuations in excess of \$100m apiece.

Amphion's share price has more than halved during the past year, but the team running the business insists that its portfolio of companies have been carefully selected for markets that are currently growing, and where their technology and products offer an immediate and important benefit.

Amphion's investment in Kromek is a case in point, given that it develops next-generation X-ray technology for the defence and security markets. Formerly known as Durham Scientific Crystals, the company was spun out of Durham University in 2003 but its valuation of £14.4m at the end of last year means that it has already delivered a paper return of 339 per cent for Amphion, which has invested £3.3m in Kromek.

Kromek focuses on the production of cadmium telluride – a semiconductor that enables significantly improved imaging in digital X-ray detectors.

Although cadmium telluride has been seen historically as being too expensive, and too difficult, to make for large-scale commercial applications, Kromek owns a 'vapour phase' growth technique, developed over 20 years at Durham University, that makes volume production of cadmium telluride crystals a reality.

Cadmium telluride is useful in improving X-ray imaging because it has properties that allow multispectral detectors to be made out of it. This means that a three-dimensional, colour image of the object being X-rayed can be produced, which helps the observer to better identify what he is looking at.

Kromek is targeting markets in the security, industrial, defence and medical sectors, and last year it launched its first product: the Kromek Bottle Scanner. This is a desktop inspection unit for bottled liquids that can scan, analyse and categorise liquids as 'pass' or 'fail' in less than 20 seconds. It can handle a range of shapes and sizes of glass, plastic and metal containers.

This June, it launched its second product: the 3-1-1 Scanner. This can scan plastic bags as well as small packages, and it is currently being trialled at Newcastle Airport.

Amphion generated revenues last year of \$7.1m (2007: \$2.9m) through the licensing of intellectual property from another of its portfolio companies, but it also made a loss before tax of \$1.2m (2007: \$10.6m profit).

Access to funds is crucial for this kind of business, and the current economic downturn's effect on the IPO market means that revenue from exits this year is unlikely. However, Amphion expects to make at least as much revenue from IP licensing this year as it did in 2008 and it believes this will be enough to cover the majority of its operating costs.

At the time of writing Alternative Investment Market-quoted Amphion's shares are trading for 13.75p each, representing a discount to net asset value (NAV) of approximately 54 per cent. Buy and hold for the long term.

Braveheart Investment Group

[Braveheart Investment Group](#) is one of the smaller firms quoted in London that invest in technology IP. Founded in 1997, and joining AIM 10 years later, this Scottish business originally focused on innovations coming out of universities and other research centres located north of the border.

However, just as William Wallace once grew confident enough to raid northern England, his namesake has recently turned its attentions to Yorkshire through the acquisition of Inkopo – a specialist technology investor based in the county – and has also established an office in London. These moves are part of the business's overall strategy to broaden its presence in the UK.

As well as taking stakes in technology companies, Braveheart also manages funds that invest in these firms on behalf of clients. Because of the tough investment climate, its fund management operation

has been hit hard with the firm reporting an increased loss from this activity during the year to 31 March of £977,000 (2008: £42,000), contributing to an overall loss before tax of £1.3m (2008: £106,000 profit).

One of the consequences of fewer client investors providing funding for portfolio companies has been Braveheart's decision to take on more of the burden of supporting these firms financially. In fact, more funding rounds were concluded last year than in previous years.

Such action makes sense, since Braveheart's portfolio of more than 20 companies includes several exciting businesses with plenty of potential.

For example, NiTech – a Heriot-Watt University spinout – owns a technology that is already being used by blue chip firms like FujiFilm and Genzyme. Dubbed 'Continuous Oscillatory Baffled Reactor', it can lower the production costs of manufacturing chemicals, drugs and biofuels.

Meanwhile, Strathclyde University spinout Cascade Technologies develops laser devices that can be used for gas sensing applications. The company's technology combines a pulse laser with a spectrometer ('intra pulse spectroscopy') to detect the unique signature of a particular gas, but Cascade's application of the technology means that up to a million measurements per second can be made and multiple gases can be detected simultaneously. Cascade's third funding round, completed in April 2008, raised £1m.

With a cash balance of £3.2m (as of the end of March), Braveheart looks well set up to survive through the economic recovery and it should thrive beyond then. At 30.5p each, its shares look undervalued compared to its end-of-March NAV per share of 46p. Long term buy.

Imperial Innovations

[Imperial Innovations](#) has been commercialising university-derived intellectual property since it was founded in 1986 as a department of London's Imperial College. Over the years, it has spun out from Imperial College, floated on AIM and has been responsible for the creation and incubation of technology companies like Turbo Genset and fuel cells pioneer Ceres Power, both of which went on to make successful stockmarket listings.

Last December, despite the economic gloom, Imperial Innovations saw one of its portfolio companies, Thiakis, sell for £99.4m in a trade sale to leading healthcare giant Wyeth Pharmaceuticals. Under the agreement, Imperial Innovations will receive cash payments of up to £22.2m in return for its stake and the business's management believes that the event marks the beginning of several exits to be achieved in years to come.

With a portfolio of 90 companies, Imperial Innovations is well diversified across a range of technologies, and these companies are still managing to achieve fundraisings amid the economic turmoil. One of its largest holdings, next-generation battery company Nexeon, raised £10m as recently as February.

Nexeon is developing silicon anodes for lithium-ion batteries, a market worth more than \$10bn that is forecast to increase to \$30bn by 2018 (source: Imperial Innovations). Having started out at Imperial's incubator, the company now boasts a fully-operational pilot plant.

Imperial Innovations invested £4m into Nexeon in the February funding round, alongside £5m from Investec and £1m from Partnerships UK. This resulted in Imperial Innovations retaining a 38.7 per cent stake in the company, which had an estimated fair value of approximately £30m after the financing.

Overall, Imperial Innovations' net asset value improved slightly during its first half (ending on 31 January 2009) to £81.5m, compared with £80.3m six months earlier. The equivalent NAV per share was 139p, which means that Imperial Innovations' shares, at 337.5p each, are trading at a very hefty premium to NAV.

Clearly, the market expects the business to come good on its view that its portfolio will see a number of similar exits to that achieved by Thiakis late last year. While Imperial Innovations is likely to receive payments of more than £20m in return for selling its stake in Thiakis last December, the stake had a book value of just £3.6m as recently as July 2008. One to watch.

IP Group

Investors can also gain exposure to a wide range of early-stage technology companies by buying shares in [IP Group](#), which has been specialising in the commercialisation of university-derived intellectual property since signing an agreement with Oxford University's chemistry department in December 2000.

Today, the business has agreements in place with 10 universities and academic research institutions. These agreements give IP Group a significant holding in technology companies that are spun out of the university in return for a lump sum investment – usually in the form of a fund – that is used to finance these spinouts. The group also provides these universities with assistance in identifying suitable technologies for commercialisation and facilitating the formation of new companies.

During the past eight years IP Group managed to float a dozen companies on AIM and the PLUS market, while one of its portfolio companies, Toumaz Technology, was acquired in a private transaction.

Consequently, a significant proportion of the group's investments are in AIM-quoted technology companies and the dire performance of AIM in general since the start of 2008 has had a major adverse affect on these. The result has been a dramatic fall in the fair value of the group's overall portfolio, which fell from £126.1m at the end of 2007 to £98.4m at the end of last year.

However, IP Group's share price experienced a much greater fall (115p to 58p) over the same period and today the shares are trading for around 40 per cent of what they changed hands for at the start of last year.

Meanwhile, IP Group's unquoted portfolio has been faring much better. For example, its largest holding, Oxford Nanopore Technologies, has made strong progress over the past year.

The company – which is developing a method of molecular detection and analysis with potential for DNA sequencing, diagnostics, drug development and defence applications – made a strategic alliance with Nasdaq-listed genetics testing specialist Illumina in January this year that included an \$18m equity investment from the US firm. According to broker KBC Peel Hunt, the deal values IP Group's stake of 28.8 per cent in Oxford Nanopore at £22.7m – which means the value of its investment in the company has almost doubled since the start of 2008.

Fully listed on the London Stock Exchange IP Group's shares currently trade for 46.5p each, representing a discount of approximately 30 per cent to the business's NAV of 67p per share at the end of April. With its strong balance sheet, including net cash of £31m (equivalent of 12p per share), IP Group's shares look good value.